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* A GLIMPSE AT THE MEDICAL HISTORY OF INDIA

by

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WE have three systems of medicine in vogue in this country, namely the Modern Medicine, the Ayurvedic Medicine and the Unani system of medicine. Siddha, which is practised mainly in South India is really a part of the Ayurvedic Medicine.

1. Ayurvedic Medicine.

The Ayurvedic medicine dates back to the days when the Aryans came to India from Central Asia about 2000 to 3000 years B. C. The early history of medicine in India, as elsewhere, is shrouded in mystery. Many of the great pioneers in this field remain unknown. It is interesting to note, that the ancient compilers of Medicine in India have described medicine as a gift of God. Ayurveda or the science of life, is said to be bestowed by Indra on Bharadwaja, who was deputed to go to him by the assembly of sages, who met in the Himalayas. This constitutes the beginning of the historical era of medicine. Atreya, the great sage, probably a pupil of Bharadwaja, was a teacher of medicine. Agninesa, the distinguished pupil of Atreya, undertook the herculean task of codifying the knowledge imparted by Atreya and to arrange it in the form of a treatise, which formed the basis of Charak Samhita.

We do not know much about Charak himself. He was a great physician, who wrote the immortal medical classic, Charak Samhita, which contains the teachings of Atreya.

The other indian medical classic is the Susruta Samhita. Both these have been translated in many languages and are the basis of Ayurvedic medicine. Susruta Samhita contains a great deal of Surgery, in which ancient Indians specially excelled. They set fractures, perfomed amputations, excised tumours, repaired hernias and did couching for cataract. They did the operations of lithotomy and rhinoplasty. Hygiene played a very important part in Indian medicine. The laws of Manu are important from the medical point of view, as they enjoin strict personal hygiene and frequent ablutions as the basis of religious worship. Thus Ayurvedic medicine had reached a high level of development in the old days.

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Bhuddism provided an added stimulus for its further advancement.

India is indebted to Bhuddism for many things, such as architecture sculpture, painting and engravings. But it is also greatly indebted to it for science and culture, and especially the growth of medicine. The best era of Indian medicine was contemporaneous with the growth of Bhuddism. Asoka (226 B. C.) and other Bhuddist kings established public hospitals and schools of medicine attached to them. This was in accordance with the injunction of Bhudda, that whosoever would wait on Him should wait on the sick. Charak, the author of well known Charak Samhita just mentioned, was the court physician of the Bhuddist king, Kanishka. Nagarjuna, the well known Bhuddist sage, infused new life into the science of Ayurveda. To his lofty intellect and wise scholarship, India owes the revised edition of Susruta now in use. The latter part of Susruta's treatise which bears the name Uttaratantra is entirely the result of Nagarjuna's independent research and thought. In the true spirit of a real Bhuddist, Nagarjuna popularised the science of Ayurveda by teaching it without reserve to all classes without distinction of caste. Even now the work on Ayurveda read by beginners is the work of Vaghbata, a Bhuddist.

It is not unlikely that Ayurvedic medicine influenced Greek medicine. At the time of Alexander's Indian expedition (327 B.C.) Hindu physicians and surgeons enjoyed a great reputation for superior knowledge and skill. Some writers even maintain, that Aristotle who lived about this time got many of his ideas from the East. There is no doubt that there was close contact between India and Greece in those days, for we learn that apart from Alexander's visit, Megasthenes was sent as an Ambassador from Greece to the court of Chandragupta, king of Magadha. When Asoka ascended this throne in 270 B.C. he was largely inspired by Bhudda and his teachings. The original temple at Bodh Gaya was built by Asoka. This great monarch had contacts with the kings of Syria, Egypt, Macedonia, Ceylon and other countries, where he spread the teachings of Bhudda. Thus our modern medicine, which is said to be the direct growth of the old Greek medicine, also inherits the noble teachings of Gautama Buddha.

All sciences and arts were studied in the chief centres of Buddhist civilisation, such as the great Buddhist Universities of Nalanda and Taxila. It is said, that the very bloom of the intellectual life of India, whether it found expression in Buddhist or Brahmanical works, was contemporaneous with the period, in which Buddhism flourished. Buddhism spread to Ceylon, Tibet, China, Korea, Japan and other countries in South East Asia. Wherever Buddhism entered the life of a people, it always gave them refinement and embellishment. For instance in Japan, Buddhism introduced art and medicine. For centuries the education was in the hands of Buddhists, as well as the care of the sick and the poor.

Medicine is part of the general culture of the human race and its history is part of the general history of civilisation. With the awakening of the human intellect and the revival of learning and ethics in the 6th century B.C., medicine too took a great step forward, and this was due in no small extent to the contribution of the Lord Buddha, which was threefold :-

(i) He introduced the highest ethical principles in the treatment and nursing of the sick. This he did by both personal example and precept. He condemned those who treated the sick out of greed and not out of charity.

(ii) By introducing the method of direct observation in studying human problems, he gave a great impetus to the progress of medicine

which took place in India during His time and for some centuries after Him, especially during the Guptha empire (320–470 A.D.) which constitutes the Golden Age of hindu civilisation.

(iii) In treating a sick person, He paid equal attention to his body and mind. He asked the patient to train himself thus : 'Though my body is sick, my mind shall not be sick.'

There is need at the present juncture to go back to Buddha and listen attentively to his words, which still echo across the centuries, words full of wisdom, compassion and love, which will serve as a soothing balm to the sick and the sorrowful humanity of today, especially in this age of atom and hydrogen bombs. They have a special value for us in the medical profession.

Ayurvedic medicine is still practised largely in India, and there are many medical schools in which it is taught. The Ayurvedic Institute at Jamnagar has been specially organised to carry out research in this Science.

2. The Unani System of Medicine

To study the origin of the Unani system of medicine we must go back to Greece, Rome and Arabia.

(a) Greek Medicine : The Greeks like the Hindus, also believed that the knowledge of medicine was a gift of God. The Unani system of medicine prevalent in India today is closely connected with the old Greek medicine. The early Greeks had a leader of medicine , whose name was Aesculapius. He was born in the year 1250 B.C. He had a public clinic in the famous temple of Delphi, where he was said to perform miraculous cures. After his death, he was deified. A number of temples were raised in his honour, the most famous being at Epidaurus. His daughter Hygeia was appropriately known as the Goddess of Health.

The Greek's attitude to life became more and more rational and this also influenced their attitude to disease and death. One of the earliest rational physicians was Pythogoras, who was born in 530 B. C. He emphasised the need for proper diet and gymnastics for the maintenance of health. He founded a medical school and taught his students to study the structure and functions of the healthy body in order to know how to treat the body, when sick.

The greatest Greek physician was HIPPOCRATES, who is known as the Father of Medicine. He was a contemporary of Plato, and was born in 460 B.C. on the little island of Cos. His father was a physician. He is alleged to be direct descendant of Aesculapius. He taught medicine in the medical school at Cos. He travelled a good deal. He lectured and practised in Athens and other big Greek cities. He probably died in 355 B. C. His teachings are contained in " Corpus Hippocraticum " or Hippocratic collection. It consists of over 100 works, dealing with various medical subjects. This collection is no mere historical curiosity. It is full of knowledge and wisdom and is as fresh today as when it was written.

Hippocrates made an attempt to find out the rational cause of disease. His predecessor Empedocles had profounded the theory of four elements—fire, earth, air and water. Applying the same idea to medicine, Hippocrates suggested that the body had four qualities, which he named as dry, moist, hot and cold, and four humours, viz., blood, phlegm, black bile and yellow bile. Derangements of one or more of these humours caused sickness, and thus the problem of disease

was explained. This hypothesis is very similar to the theory of Vata, Pitha and Kapa of Ayurveda.

According to him, the most important thing in the practice of medicine is observation. He writes :—

'First the physician must examine the face of the patient, and see whether it is like the faces of healthy people and especially whether it is like its usual self.'

In it every important detail is recorded in an objective and scientific manner. He attached great importance to prognosis. He thus sums up the duties of the physician :

'Consider the past, diagnose the present, foretell the future; practice these arts. As to decisions make a habit of two things—to do good, or atleast to do no harm.'

He believed in the healing powers of nature. He was a skilled surgeon and performed lithotomy and did trephining of the skull. Like Susruta of our land, Hippocrates attached great importance to the surgeon's care of his finger nails. Through the non - observance of this teaching, countless lives must have been lost until its truth was scientifically demonstarted by Lord Lister about 100 years ago.

The greatest contribution of Hippocrates to medicine was the introduction of ethical principles. His famous oath known all the world over still forms the basis of the ethics of the medical profession today. He brought dignity to the practice of medicine. A high standard could only be maintained, if physicians proved worthy of their calling. This is how he instructed his followers :

'Life is short, the art long; opportunity fleeting, experiment dangerous and judgment difficult. The physician must be ready not only to do his duty himself, but also to secure the co-operation of the patient, of the attendants and the externals.'

Hippocrates had a most wholesome influence on the progress of medicine. He raised medicine to the status of a science and placed it on a high pedestal by combining it with the humanities. The greatest of his many sayings, which we should remember, is–' Where there is love of man, there is also love of the art of medicine '.

After Hippocrates came another great man Aristotle, who was a pupil of Plato. He lived in the 4th century B.C. He was not a practising physician himself, but included medical science in his comprehensive studies. Like Hippocrates he insisted on the scientific method in studying matters relating to health and disease.

After Aristotle, the glory of Greece began to fade, and the Hippocratic tradition moved to Alexandria in Egypt, a town founded by Alexander the Great. Here a medical school was established, where the teachings were those of Hippocrates. Here the sciences of anatomy and physiology were studied. This was made possible by the introduction of the practice of dissection of the human body.

The school of Alexandria flourished for many years. There was a vast collection of medical books there ; not one of these has however survived. The whole library was burnt by a mob and 700.000 manuscripts completely destroyed.

I have already mentioned that there was contact between India and Greece in the old days through Alexander's Indian expedition and other ways, and Indian Medicine definitely influenced medicine in Greece.

(b) Medicine in Rome :—By the 1st century A. D. the centre of civilisation shifted from Greece to Rome. But the medicine in Rome was Greek medicine, and all the great physicians in Rome were Greeks.

Long after the death of Hippocrates, there were no genuine doctors in Rome. Greek doctors made their first appearance in Rome about the beginning of the 2nd century B.C. In 90 B.C. Asclepiades, a greek physician. appeared in Rome. He was born in Bythnia, educated at Athens and attended the medical school at Alexandria. He quickly gained in reputation and was known as the prince of Physicians. He counted among his friends such men as Cicero and Mark Antony. His methods were essentially Hippocratic in spirit, although he proclaimed himself as opposed to Hippocrates. In treatment he showed a marked preferance for suitable diet, massage and rest and not so much for the administration of drugs. He was a keen and patient observer and was responsible for classifying diseases into acute and chronic.

The greatest figures in Greeko-Roman medicine after Hippocrates is Claudius Galen, who was born in 131 A. D. in the town of Pergamus in Asia Minor. He studied medicine at Alexandria, which had the best medical school at the time. He also visited Greece. He realised the great worth of the teachings of Hippocrates and grasped the important fundamentals, but he followed the spirit rather than the letter of Hippocrates collection.

In 162 A. D. Galen came to Rome. Marcus Aurelius was then the emperor and Roman civilisation was at the height of its glory. Medicine in Rome had not advanced to the same extent as in Greece. There were many sects and schools of thought. Galen soon became the most renowned physician in Rome. He wrote a great deal. During his lifetime he had written 500 treatises on medical subjects of which 100 have survived.

He was very fond of dissection and as the dissection of the human body was forbidden in Rome, he dissected monkeys and other animals. He tried to find the cause of every bodily function. He was truly a scientist and believed in experimental method.

Galen died in 200 A. D. It is remarkable, that his infiuence remained dominant in medicine during the next 1200 years He codified all Greek and Roman medicine from the time of Hippocrates and made many contributions of his own. His writings were the standard textbooks in medicine for centuries. His authority remained supreme and this unfortunately served as a check to further progress.

After the Greek empire broke up, its culture was first continued in Alexandria and then at Rome. When the Roman Empire broke up, culture disappeared from Europe for a thousand years. Galen was the last of the Greek physicians. After the death of the emperor Marcus Aurelius the Roman empire began to crumble and Rome itself became untenable. The seat of Government was transferred to Constantinople, and with it went the science of medicine. The medical schools disappeared. The Greek manuscripts were lost or destroyed. Medicine was no longer a science. For centuries it seemed as if Hippocrates and Galen had laboured in vain.

Christianity however had a wholesome influence and it was in the monastries that learning survived and some part of the old Greek and Roman literature was kept alive for future generations. But they did much more than that. The monastries offered sanctuary and hospitality to the poor, the needy and the sick. Thus the monastry also became a hospital. Under the influence of Christianity many hospitals were established. Medica

science was enriched with the Christian ideal of charity and many woman as well as men devoted their lives to the relief of the sick and suffering.

(c) Medicine in Arabia:—While in Europe medicine as a science was at a standstill for centuries after the fall of Greece and Rome, the light of knowledge had not been altogether extinguished. Many of the works of Hippocrates, Galen and other Greek physicians had been safely evacuated to Constantinople, where they were carefully preserved.

From Constantinople this knowledge spread to Mesopotamia. Baghdad was the centre of Arab culture, where an enlightened caliph, Harunul-Rashid ruled. He founded a University, a hospital and a medical school. The books of Hippocrates and Galen were translated into Arabic. A large number of doctors were trained in Baghdad. This opened up a new era in the history of medicine in Arabia, which had profound influence in India too.

The Arabs who were inspired by the teaching of the Holy Prophet Mohammed became the torch bearers of learning and culture. They realised the tremendous value of the Greek and Roman literature in medicine, which they had acquired. They followed the old system and wrote commentaries on it. Unfortunately dissection was not permitted and surgery suffered on that account. Their most important scientific advance was in the realm of chemistry, with which the old Materia Medica was considerably enriched.

Two Arab physicians were outstanding namely Rhazes and Avicenna. They played an important part not only in introducing Greek medicine in Arabia but also in the revival of learning in Europe. Rhazes was born in 860 A. D. in the Persian town of Rai. He wrote a 25 volume Medical Encyclopaedia, based largely on Galen and over 200 other works. He was a very original thinker. It was he, who introduced animal gut in sutures for abdominal wounds.

The second great physician was Avicenna (Abu Ali Ibn Sina). He wrote the well known book "Canon of Medicine" which was used as a text book in European medical schools long after the renaissance. He made many valuable contributions to medical science. He was a theologian, philosopher, poet and scientist. His millenary (1000th birthday) was celebrated with great enthusiasm all over the world last year.

Then a remarkable thing happened. It must be remembered that the Muslim empire was not confined to Arabia, Mesopotamia and Persia. It gradually spread from there to the west and the east.

And so the medical knowledge contained in the writings of Hippocrates and Galen which had come to Baghdad also spread to west and east with the extension of moslem influence.

On the west, it extended to Southern Spain, and it was from Cordova that knowledge began to flow back into Europe. Cordova had a University in the 8th century and in the year 1000 it had several hospitals and medical schools and many practising physicians.

The other great centre of medical learning was at Salerno in Italy, which flourished in the 13th century. It achieved a very high reputation. In the medical school here the curriculum consisted mainly of the translations of Hippocrates and Galen and a special section was devoted to surgery. It is interesting to note that in 1240 Emperor Frederick II ordained in respect of the doctors trained in Salerno, that the poor shall be treated free and that doctors applying for licenses should take an oath reminiscent of the Oath of Hippocrates.

Much useful work was done at Salerno in reviving the old knowledge in the establishment of a medical library and the training of physicians. In the middle of the 13th century this school began to lose its influence.

On the east, the Muslim influence spread to Afghanistan, Central Asia and India, and with it came the Greeko-Roman medicine as taught and developed in the medical school at Baghdad. The Mohammadans first came to India in 711 A. D. and their visits continued for a number of centuries. Ultimately the Moghul empire came into being with Babar as the first Moghul Emperor in the 16th century. The most notable name in this regime is that of Emperor Akbar, who ruled from 1556 to 1605, and who introduced a series of reforms, social, political and religious for which his name is famous. In India the Unani system flourished in certain centres, notably at Lahore, Lucknow, Hyderabad (Dn.), Aligarh and Delhi. There are many Unani schools in the country now, where this system is taught, and there are many Hakims who practise it.

3. Modern Medicine.

The Renaissance and the Modern Age.

In Europe, however, a profound change took place in the 15th century when there was a transition from the middle ages to Modern times The movement consisted of a revival of learning and is known as renaissance. It commenced in Italy and spread over the continent. It was a new spirit a new desire for knowledge and progress, which affected every sphere of life. Unquestioning acceptance of authority gave way to criticism and experimental enquiry and medical science, which had scarcely proggressed since the days of Galen, was quickly enriched by new discoveries.

The greatest character in the renaissance was Leonardo-da-Vinci. He was primarily an artist and sculptor, but he contributed to every art and science, including medicine. The man however who revolutionised medicine was Andreas Vesalius, who was born in Brussels in 1514, 5 years before the death of Leonardo-da-Vinci He studied anatomy under Jacobus Sylivus at Paris, and carried out dissection which was still prohibited by law, under great difficulties. Vesalius went to Padua (in Italy) and at the age of 24 was appointed Professor of the Padua university. Here he was able to study the structure of the human body by dissection. After 5 years of intensive labour, he published one of the most famous books in medical literature: **De Humani Corporis Fabrica**, which is described by Sir William Osler as 'the greatest book ever printed from which modern medicine dates.' It served as the basis of medical teachings for centuries afterwards.

Among the early physicians of the renaissance, I may mention Thomas Linacre, who persuaded King Henry VIII to found the first real medical association in England–The Royal College of Physicians of London Linacre, who was president of the Royal College had studied at Padua and so did his successor John Caius, who had met Andreas Vesalius there and brought the study of anatomy to England.

The greatest name after Andreas Vesalius is that of William Harvey, who was born at Folkstone in 1578 and educated at Cambridge and Padua. He took his medical degree at Padua and returned to England to practise in London. The great contribution of William Harvey, was his description of the circulation of blood. He was a true scientist. He adopted the scientific method in his investigations. In 1628 he published his epoch making discovery in his famous book 'De Motu Cordis et Sangunis' or 'On the movement of the Heart and Blood'. He died in 1657 at the age of 79. Vesalius and Harvey's work laid the foundation of physiology and anatomy

and changed the whole basis of medical science.

Then there followed centuries of progress due to the work of reformers who were inspired by the spirit of renaissance.

Thomas Sydenham in London and Hermann Boerhaave in Leydon (Holland) were great teachers of clinical medicine, who stressed the need for observation and careful examination of the sick person more than anything else. On the surgical side there were William Chiselden, Percival Pott, William Hunter and John Hunter. Percussion was introduced by Leopold Auenberger, stethoscope by Laennec, vaccination by Edward Jenner. The most merciful of all discoveries was the conquest of pain and the introduction of anaesthetics, so that surgery became painless.

The discovery of the microscope marks an important landmark in the history of medicine. It made the discovery of micro-organisms possible. A Dutchman named Antony Van Leewenhoek, constructed a microscope and with it first saw the microbes. Rudolf Virchow using the same instruments found that the human body consisted of cells and this revolutionised, the science of Pathology. But the greatest scientist of the 19th century was Louis Pasteur, a Frenchman, who was born in 1822. He was not a physician, but a chemist. He discovered the true nature of the process of fermentation, namely that it was caused by living organisms. He discovered the nature of immunity and was the first to cure people bitten by mad dogs. His work on rabies caught the imagination of the people. His influence can be detected even today. His work on micro-organisms has laid an entirely new foundation for the practice of medicine and surgery, and has specially made a great contribution to preventive medicine.

I must also mention the name of Robert Koch, a German who was born in 1843. He discovered the vibrio cholerae and the tubercle bacillus. Another bacteriologist Metchnikoff, a Russian, who came under the influence of Pasteur, discovered the body's natural armour againt disease– i.e., leucocytes of the blood. His theory threw new light on the nature of the infection.

The credit for applying Pasteur's discovery of microbes in the domain of medical science goes to Joseph Lister, who was born in 1827. By using carbolic acid as an antiseptic in operative surgery he made surgery safe. He is rightly known as the father of antiseptic surgery which has led to aseptic surgery in our times. Lister was a great personal friend of Pasteur. I may narrate the following incident which is well worth recording :

> "The scene was Paris : the occasion the 70th birthday of Louis Pasteur. Amid tumultous applause France's greatest scientist was escorted to the platform by the President of the Republic. Many were the orations that followed, and extravagant the praises; but none of these could have meant more to Pasteur than this simple tribute from an Englishman :
>
> 'Truly there does not exist in the world an individual to whom medical science owes more than you'.
>
> It was not the words that mattered, but the man who spoke them......
>
> 'The future' asserted Pasteur in his reply, 'will belong to those who have done most for suffering humanity. I refer to you my dear Lister.'
>
> Was it any wonder that the assembled crowd went wild with enthusiasm when these two great men embraced each other in the middle of the platform.

We in the tropics are specially interested in tropical diseases, the commonest of which is malaria, which directly, or indirectly has been a cause of large majority of deaths, as well as disablility in these regions. This disease was known to the ancients.

The cause of malaria is a parasite which was discovered by Alphonse Laveran in 1878, and it was Sir Patrick Manson who propounded a theory, that it was conveyed from one human being to another by the mosquito. But the man who actually proved that mosquitoes were concerned in this transmission was Ronald Ross who was born in Almora in India in 1857. He was an Officer of the I.M.S. and it was while he was posted at Secunderabad in Hyderabad State, that he carried out experiments on mosquitoes and proved that malaria spread by the bite of anopheline mosquito. This was a discovery of great importance.

For further history of modern medicine, I need not detain you much longer. Medicine has made great progress in the 19th century. But the progress in the first half of the 20th century has taken place with a rapidity which was undreamt of before. There is the discovery of X-rays and Radium, the conquest of Yellow Fever, the discovery of Vitamins, Insulin, Sulphonamides, Penicillin and other antibiotics. In this battle against suffering and disease, workers in all parts of the world are paticipating. Medicine in the truest sense of the word is becoming universal and in this process the World Health Organisation and other International bodies are making a valuable contribution. It is this modern medicine which has developed since the days of renaissance which came to India with the British. The East India Company was established in 1600 with a charter from Queen Elizabeth. In 1639, this company had established itself in Madras and in 1690 in Calcutta. In 1857 the Government was transferred from the East India Company to the British Crown and in 1947, the onset of Independence from the British Crown to the people of India was an event of major importance. There were other European powers also in India, namely the French and the Portugese etc. but they had hardly any influence on the growth of medicine in this country.

Concluding Remarks.

This is just a glimpse and a brief review of the history and growth of medicine in our country. Medicine has been practised here from time immemorial. The system which is indigenous to the soil is the Ayurvedic, which has made important contributions to medicine and surgery. Subsequently with the advent of the Muslims from Central Asia and Persia, the Greeco-Arabian system was introduced. This was based on the ancient medicine of Greece and Rome and was practised and taught under the enlightened patronage of the Khalifas of Baghdad. The principal service of Islam to medicine is the preservation of Greek culture. The very name Unani Medicine means Greek Medicine. The Unani system was especially noted for its chemistry which had its origin in Arabia. These two systems (Ayurveda and Unani) were taught and practised in India when it came into contact with the nations of the west from the 16th and 17th centuries onwards. They are still widely practised and command much influence.

Modern medicine, you will appreciate, has grown out of the Greeco - Roman medicine, which was in its turn influenced by medicine in India, Arabia and Egypt in the old days. It has developed specially since the days of renaissance in Europe, so that the marvellous progress that is to be noticed today dates back to only about 300 or 400 years ago. This modern medicine came to India with the British. During this period, we see the establishment of hospitals, Medical Colleges and schools, Research Institutes like the

Pasteur Institute of Southern India in Coonoor, and the organisation of medical and health services (curative and preventive) both for the defence services and the Civil population. Since the advent of Independence, this progress has been further accelerated. We have already achieved much in this respect during the last 9 years, and there is a prospect of achieving much more in the years to come. Vast expansion of medical relief both in the urban and rural areas, and of medical education is taking place, as well as in our programme of medical research, so that India is making an important contribution to the advancement of medical science. But we must realise that there is a great task ahead of us, and a great deal still remains to be done.

In drawing up our future programme, it is necessary to make a proper appraisement of the achivements of our own past. The future must have roots in our past history. In spite of the numerous political upheavels, India has come down through the ages with her intellectual health still intact. It is only natural, that now that we have achieved Independence we should take keen interest in the revival of India's art and culture, including her old achievements in the science of medicine.

It is also vitally important, that we should realise, that medical science has made great strides in recent times. Some of the advances have been of a revolutionary character, so that our efforts both in the sphere of curative and preventive medicine are more effective now than ever before. This is due to the fact, that all problems are considered in an objective manner and our approach to them is through observation and experiment, methods which have indeed furnished us with a rich harvest of useful knowledge and we should pursue them with all the zeal and resources at our command.

We must not forget, however, that there is no room for any element of pride here. It is one of the lessons of the history of science that each age steps on the shoulders of the ages which have gone before, and if today we are proud of some of our achievements, we would, could we but read the future, find much of which we would be ashamed. Doubt and modesty have never stood in the way of the progress of science. On the other hand, doubt and modesty have often proved added stimuli to further enquiry and discovery of truth.

The task before us in India, therefore, today is to integrate the old learning with the new science. Evaluation of past medical knowledge in the light of modern scientific methods is very essential and is bound to yield good results. For this purpose a study of medical history is of fundamental importance. I may remind you of the words of Mr. Winston Churchill (now Sir Winston Churchill) addressed to the Royal College of Physicians of London in March 1944. 'The longer you can look back, the farther you can look forward'. They comprise a great truth. I trust, therefore, that adequate provision will be made in our educational institutions for the study of the history of medicine. It will give us pride in our own past achievements. It will widen our mental horizon. It will be a suitable contribution to liberal education imparted in our universities. It will help to break down barriers, which artificially divided medicine into different systems in our country. It will bring home to us the truth, that medicine is one Universal Science; that it knows no differences of creed, colour, language or race, and disregards all geographical boundaries. And, further, by emphasising the Unity of Medicine and its essentially humanistic ideals, it will promote the cause of human welfare, mutual understanding, good-will and peace.

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CONTRIBUTION TO THE KNOWLEDGE OF DIABETES BY THE OPHTHALMOLOGIST

by

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THERE is no part of the human body that seems to escape a pathological lesion in diabetes melitus and there is no part of the eye that escapes in ocular affections in diabetes.

The most important and interesting of the ocular lesions are vascular changes in the retina and retinal lesions. To discuss these will be the major part of my labour to-day.

The average physician does not know what the ophthalmologist has contributed to the present knowledge of diabetes, and as this knowledge concerns more the physician than the optholmologist, I have selected this subject for to-day, knowing that I have to talk more from the General practitioner's point of view.

Let us go briefly through the development of the present knowledge of diabetes through the different stages.

First at autopsy the pancreas was discovered to be diseased in diabetes. Langerhan then put his finger for the first time on a group of cells in the pancreas—the islets–as the seat of disease. Banting isolated insulin. The physicians tried it. The patients began to live longer, and now the ophthalmologist came on the scene, because with increased expectancy of life retinal changes began to appear. It is from this point onwards the ophthalmologist has borne the burden of research in diabetes and the subsequent knowledge of this disease has greatly been contributed to the observation of ocular changes by the ophthalmologist and his associated reasearch–workers.

Jaegar in 1856 was the first to draw attention to retinal lesions in diabetes and he grouped them under glycosuric retinitis. Then a great controversy started about arteriosclerotic and diabetic retinopathy, whether the two are the same or different. Xirschbury in 1891 clarified for the first time the difference between the two as regards the symptoms, clinical course and life expectancy.

We also know that opthalmologists have contributed to the knowledge of several types of vascular diseases, such as (1) atherosclerosis. (2) arteriosclerosis. (3) arteriolarsclerosis. (4) Medial sclerosis and now finally (5) this new type of vascular lesion, sclerotic changes of diabetes These latter are confined to the capillaries and venules of the retina and the glomeruli of the kidney and are of a nature of a pericapillary or intercapillary sclerosis due to deposition of a special brand of hyaline.

It is possible for more than one type of sclerotic lesions to exist together e. g. diabetic changes alone with lipoid disturbance which cause atheromatous changes which will result in gangrene and so forth. That must also be the reason for the controversy between albuminuric and glycosuric retinopathy of olden days and perhaps even to-day, when confusion arose because of supervention of an arteriosclerotic change over diabetic sclerotic changes, and the initial misunderstanding the two as belonging to an identical sclerotic condition.

* Reprinted from the Coimbatore District Medical Annual Number (1956)

DIABETIC RETINOPATHY :

Before we go any further let us describe the changes that take place in the retina of a diabetic.

In the first place these changes do not take place till at least 10 years have passed in a diabetic life. Again severity of the disease does not matter ; it is the chronological age of diabetes that matters.

The different stages are : (1) Venous stasis. (2) Microaneurysms. (3) Haemorrhages, tiny, superficial and deep. (4) Exudates. (5)Large haemorrhages, vitreous haemorrhage and retinitis proliferans.

What probably happens is that there is a disturbance of the mucopolysaccharide metabolism due to diabetes. This causes hindrance of movement of tissue fluids with interference in oxygenation and nutrition in the tissues This leads to degenerative and proliferative changes in the capillaries causing venous stasis. It has been wrongly stated that vascular changes in diabetes are confined to the venous side. Ashton from the Institute of Ophthalmology, London has shown by means of photomicrography of flat sections of the retina that the primary vascular changes are more in the precapillaries on the arterial side with secondary changes in the capillaries on the venous side. Since these changes can be noticed only microscopically, we are led to believe that the gross visible changes begin and are confined to the venous side.

On the venous side, because of tissue anoxia the most interesting changes are the development of microaneurysms, dilatation of the veins and formation of aneurysmal varices. Later, haemorrhages and exudates take place in the retina due to increased capillary permeability. Finally a large vitreous haemorrhage takes place with organisation (retinitis proliferans) and detachment of the retina. It is important to know that these retinal changes are now known to be reversible, till we get to the final stage of vitreous haemorrhage and subsequent pathology which are irreversible.

RENAL AND RETINAL CIRCULATIONS OF BLOOD :

It is interesting to know that there is a great similarity between the renal and retinal circulations as regards pathological changes which take place primarily in the blood vessels. This similarity is well established in cases of essential hypertension and also in pregnancy nephritis, as well as other vascular diseases like atherosclerosis and arteriosclerosis. This analogy is now extended to the vascular changes in diabetes.

It is known that the later stages of diabetes are characterised by the so-called intercapillary glomeruloselerosis in which a hyaline substance of a special staining property is deposited between the capillaries of the glomeruli—the diseases known as Kimmelsteil-Wilson disease. Similarly the same type of hyaline is to be found in the basement membrane of the capillaries of the retina.

One can now understand the confusion of previous observers between diabetic and arterio-sclereotic retinopathy. Diabetes leads to this peculiar type of sclerosis in the vessels which however is distinct from the other types of sclerosis in other sclerotic conditions of the blood-vessels. Again it is peculiar that this type of sclerosis due to hyalaine deposition, peculiar only to diabetes is not to be found in any other organ of the body excepting the kidney and the retina.

PATHOLOGY :

In order to understand the pathology of diabetic changes, it is first necessary to take stock of certain paradoxical features in diabetes (a) Retinopathy can be found in mild and severe cases. (b) It is to be

found in treated, half treated and untreated case. (c) It can occur even in controlled diabetes although in untreated cases it is to be found in a much greater proportion. (d) Sometimes it is absent in uncontrolled diabetes. (e) It is to be found in young as well as old. (f) It can take place in the presence or absence of hypertension. (g) Capillary frigility can be present or absent when retinopathy has resulted.

Naturally such paradoxical features add much to the confusion in a proper understanding of the pathology of the diabetic changes in the eye and the kidney.

It is my usual custom to clarify the modern concept of the diabetic state in the form of a star. I call it the " Diabetic Star ".

Let us take each ray of this star, and consider separately :

1. **Venous Stasis**: I have already explained earlier that the cause of the venous stasis is due to a constriction of the precapillaries which can be due first to a functional spasm leading to an organic constriction due to deposition of hyalaine round about the precapillary. The ophthalmoscopic examination, which betrays a venous stasis, contributes much to an early diagnosis of a diabetic state: e. g. a mere dilatation of the veins found in a routine examination of the eye, say for refraction, may sow the first seeds of suspicion towards the diabetic state. It is a well-known fact that many times an ophtholmologist is the first to diagnose diabetes from an ophthalmoscopic examination. I know of cases who were unaware of their diabetes and in whom the retinal condition was one of diabetic haemorrhages and exudates in the retina.

2. **Capillary Fragility**: It is a well-known fact that in diabetes the index for capillary frigility is high. At the same time there are diabetics with severe retinal changes in whom the index is within normal limits. Evidently the capillary fragility cannot be the cause of the diabetic process. It is only an incidence which may be treated with anti-fragility drugs with benefit. However these drugs cannot cure the diabetic state or reverse the retinal changes. Any improvement with rutin in the retinal condition is no better than with good diabetic control.

3. **Diabetic Vascular Sclerosis**: We have already dealt with this part while talking about Kimmelsteil-Wilson diseases. Undoubtedly the hyaline deposits around the precapillaries of the retina and in the inter-capillary spaces of the kidney are the most consistant changes in the more advanced stages of diabetes. They begin to take place when the disease has lasted over a number of years. They occur more commonly in diabetes who are poorly controlled. They are the cause of diabetic retinopathy and it is a known fact that the retinal changes do not take place until at least 10 or 15 years have passed since the commencement of the diabetic stage. These are the changes which ultimately lead to the destruction of the retina and the kindney of the patient and eventually cause the death of the patient. However, not all the cases develop retinopathy and so it is not an inevitable outcome of the diabetic process.

4. **Lever Disfunction**: It is again a well-known fact that there is evidence of liver damage along with pancreatic damage in most diabetics. There is (1) hyperbilirubinaemia (2) excess urobilinogen in urine in absence of biliary obstruction and (3) close relationship is known to exist between insufficient liver function and development of sclerotic changes in vessels possibly because of the absence of the detoxifying capacity of the liver. Kinsell has shown that patients with chronic hepatitis show a negative protien balance in the serum with increased catabolism of sulphur-containing amino-acids. Administration of testosterone propionate improves the altered blood-chemistry.

Again although diabetes is to be found equally between males and females, diabetic retinopathy is preponderently present in females. This is explained by the inability to inactivate estrogen which is the property of liver. This disturbs the balance between estrogen and androgen resulting in excess estrogen.

5, **Sex Hormones**: This discussion leads us to the role of sex hormones in diabetes. It is a well known fact that diabetes gets worse with menopause, menorrhaggia, metrorrhaggia and other serious gynecological troubles. An interesting case has been described by Sherril in which a woman with a diabetes of 18 years got several microaneurysms during pregnancy which disappeared on termination of pregnancy. This incidentally shows the reversibility of diabetic retinal changes.

Testosterone propionate, not methyl testosterone improves liver function e. g. in cirrhosis of the liver and chronic hepatitis. Saskin, Waldman and Pelmer have written in glowing terms about the value of this male hormone in the treatment of diabetic retinopathy. A controvery of a high pitch is going on at the moment on the value of the male hormone. My personal experience is gratifying in some of my cases. It is interesting to note that many of the male diabetic subjects exhibit evidence of a deficient male hormone in the sense that there is diminished libido, impotency, testicular atrophy and gynecomastia.

Again the rarity of the retinopathy in male is suggestive of the part played by lack of the male hormone in the causation of the diabetic retinopathy in addition to the part played by the liver as described above.

ROLE OF CORTICO-STEROIDS:

A number of clinical, laboratory, autopsy and experimental facts of recent development have thrown light on the part played by Cortico-Steroids in the causation of diabetic retinopathy.

Clinical Evidence : The first suspicion on the role of Cortico-Steroids in the causation of diabetic retinopathy was raised when two patients with diabetes who were taking Cortisone developed retinopathy and Kimmelsteil - Wilson disease.

It is also a well-known fact that diabetes gets worse during mental strain as in pregnancy and when under emotional stress, when liberation of the adreno-corticotropic hormone from the anterior pituitary may be assumed. Sherill's case of the development of hundreds of microaneurysms in a pregnant diabetic women, with their disappearance on termination of pregnancy has already been mentioned. This must be due to post-partum inhibition of the pituitary activity. In my own experience I know of one patient particularly who had an advanced stage of the retinopathy which became worse every time she had some kind of emotional strees. Twice it worsened when two of her daughters had to leave their husbands and had to come and stay with her, and a third time when she was involved in a car accident. The interesting thing about such a worsening is that it regresses after the strain wears off. Stressful life situations cause a fall in the glucose and a rise in the ketose of the blood. This feature is more marked in the diabetic under phychological stress and is characteristic. They become moody and irritable.

The probable series of events taking place may be as follows: With alarm, there is increased secretion of ACTH by the pituitary and so an increased secretion of corticosteroids. There are two types of corticosteroids. (1) glucocorticoids, one of which is Cortisone and (2) mineral corticoids i. e. desoxycorticosterone and 17 Keto-steroids. The latter are concerned

with maintaining the balance of electrolytes. An upset of the balance between the two types of steroides alters the permeability of the capillaries due to an upset of the electrolyte balance, which is more so in diabetes.

Thus in stress situations the " diabetic" action of the anterior pituitary comes into effect more so in a diabetic subject.

Autopsy Evidence : Clinical experience of this nature made the pathologist dig out their post-mortem specimens of adrenals of diabetic subjects that had come for autopsy. They were found to be heavier than the normal ones and lipid changes were found in the zona fasciculata and an unusually large number of adenomas of the same region.

Biochemical and Laboratory Evidence : Patients with diabetic retinopathy exhibited an increased excretion of oxy-steroids indicating an excessive secretory activity of the zona fasiculata of the adrenals.

Eversole failed to get with ACTH a drop in the eosinophylic count in diabetics with retinopathy as against diabetic without retinopathy in whom a positive eosinophil response to ACTH could be obtained, suggesting an altered response to ACTH from the adrenal cortex.

Experimental Evidence: The above clinical facts led to some experimental data which is of great importance and interest.

1. Rich, Barthroy and Bennot produced in rabbits glomerular lesions, remarkably similar to diabetic lesions by injecting Cortisone intramuscularly. Improvement took place with adrenalectomy. Similar glomerular changes were found in the kidneys in non-diabetics who had taken a long and intensive treatment with ACTH.

2. Three groups of animals were taken. (I) Normal animals to whom Cortisone was administered. (II) Animals in whom alloxon diabetes was induced. (III) Animals from Group II to whom Cortisone was administered. It was only Group III animals that developed a diabetic retinopathy.

These experiments conclusively show that although prolonged use of Cortico-steroids do produce glomerular lesions, dose for dose they do not have the same damaging effect on the capillaries of the kidney and retina of normal animals as they have on those of diabetic subjects. The diabetic state potentiates the damaging effect of the cortico-steroids on the capillaries of the kidney and retina.

B_{12} DEFICIENCY

Recent improvement in technique regarding determination of excretion of B_{12} microbiologically has disclosed some very interesting facts about the excretion of B_{12} in normal and diabetic subjects. It was first found in experimental animals that B_{12} deficient animals showed hyperglycaemia. Normally vit. B_{12} is found in high concentration in the pancreas, kidneys and adrenals of experimental animals.

In the experiments on aloxan diabetes in rats, it was found that B_{12} deficiency had been induced. Similarly rats to whom Cortisone was administered also showed increased excretion of B_{12} in the urine which appeared to be mobilised from all tissues. Cortisone treated patients also excrete an excessive amount of Vit B_{12}. If a test dose of 50 μg of Vitamin B_{12} are given to (1) a normal subject (2) a diabetic subject and (3) a diabetic subject with retinopathy the excreted quantity of Vitamin B_{12} shows a very interesting dissimilarity. Non-diabetics excrete about 10 gama of B_{12}. the diabetic without retinopathy excrete only 5 gamas whereas a diabetic with retinopathy excrete about 20 gamas. It is interesting to note that a

diabetic excretes less Vit. B_{12} than a normal individual whereas one with diabetic retinopathy excretes almost twice as much as a normal individual. This is very suggestive of the hypothesis that in a diabetic subject less B_{12} is excreted because the B_{12} deficient body retains it out of a test meal. On the other hand the metabolism in subjects with diabetic retinopathy has become so upset that in spite of administration of B_{12}, mobilisation of the B_{12} from the tissuses continues and so further excretion of the vitamin takes place. This picture resembles excessive excretion of Vit. B_{12} in experimental animals and in patients to whom Cortisone is administered. Thus increased activity of the adrenal cortex prevents a retention of B_{12} in spite of its deficiency in this tissues. I like to call such a deficiency "Malignant". Such experimental and clinical subjects when given testosteron with a view to cure the adrenal cortical function through the anterior pituitary, reduce the exeretion of B_{12} in the urine, thus betraying the actual nature of B_{12} deficiency in such subjects, which can be attributed to increased adreno - cortical activity.

Vit. B_{12} is beneficial not only in diabetic retinopathy but also in diabetic neuropathy, but Vit. B_{12} is not the sole factor in the pathogenesis of diabetic retinopathy and in Kimmelsteil Wilson disease because in pernicious anaemia where there is B_{12} deficiency there is no retinopathy or Kimmelsteil Wilson disease, again B_{12} deficiency alone in rats does not cause retinopathy and B_{12} administration alone does not cause improvement in the diabetic subject.

Along with B_{12} deficiency there are also other forms of B deficiency in the diabetic.

SUMMARY :

Recapitulating our knowledge from the diabetic star, we can summarize that diabetes is a profound metabolic disturbance perhapes originating in the liver and pancreatic (hormonal) disfunction resulting in a state of imbalance between the anterior pituitary, pancreatic and adrenocortical hormones and even the sex hormones, in various proportions.

Once the diabetic state is established over a number of years (10 to 15) it potentiates the activity of the anterior pituitary from all kinds of mental stresses and strain which alters the reactivity of the adrenal cortex which results in increased excretion of oxysteroids in the urine. This upsets the electrolyte balance and results in an altered state of permeability in the capillaries which lead to tissue anoxia and the setting up of a specific type of sclerosis in the capillaries of the retina and the kidney glomeruli. These eventually lead to diabetic retinopathy in the retina and interstitial glomerulo-sclerosis (Kimmelsteil - Wilson disease) in the kidney.

Even up to the stage of diabetic exudates the retinopathy is reversible with proper treatment.

With the occurence of mass haemorrhages into the vitreous the retinal condition becomes irreversible. With every phychological shock or with chronic psychological strain the condition deteriorates but regresses with the subsidence of this strain, though not fully.

Simultaneously a B_{12} deficiency is induced both from the diabetic process and altered reactivity of the adrenal cortex, which deficiency becomes "malignant" when retinopathy sets in. In some cases a capillary fragility is also induced.

TREATMENT :

The above considerations suggest several lines of approach to the treatment problem of diabetic retinopathy and incidentally

also of diabetic neuropathies and myopathies.

1. Treatment of diabetes (a) with diet, (b) with insulin.

2. Control of the adrenocorticotropic activity of the pituitary.

3. Improvement of liver function.

4. Counter B_{12} deficiency.

5. Use of testosterone.

6. Use of anti-fragility drugs.

The prime importance in the treatment must go to the control of the diabetic state. It can be seen that the later and more crippling manifestation of diabetes do not appear till late (after 10 to 15 years) and there is abundant proof that although in a few instances the later manifestations do appear in spite of proper control of diabetes, the incidence of such manifestation is definitely less in well-controlled than un-controlled or what is worse, badly controlled diabetes. Control with diet is the most natural and the safest way undoubtedly but there should be no hesitation to the proper and minimal use of insulin if diet alone is insufficient for proper control.

One particular variety of diabetes must be noted which cannot be controlled even with insulin. In such cases it is assumed that there is an anti-insulin factor in the pancreas which destroys insulin as fact as it is elaborated. Such cases do not develop acidosis, but they do develop intercapillary sclerosis (Kimmelsteil-Wilson disease) in the kidneys, and so develop also retinopathy.

It must also be noted that all diabetics do not react uniformly to insulin theraphy because of the various degress of affections of the different rays of the diabetic star.

Control of the diabetic state therefore appears to be that one single measure to prevent the cultivation of that state on which other noxious factors begin to act.

In this control, however, the liver deficiency has not to be lost sight of. Testosterone improves liver function by countering the effects of excess estrogen and corrects the blood-chemistry in chronic hepatitis as seen previously. Alcohol is to be avoided for the same reason.

The second in importance appears to be curtailment of the activity of the anterior pituitary which produces a damaging effect on the retinal and renal blood-vessels in a diabetic subject. The best way to bring this about is to bring home to the patient the need to avoid all situations and circumstances that involve mental anxiety and strain and to instruct his next of kin to see that they are not responsible for creating such situations, so that psychological upsets are minimised.

Again testosterone is supposed to cure the overactivity of the adrenocorticotropic hormones of the pituitary and so it is indicated. Largactil for a similar reason may be indicated in the presence of acute distress.

Hormonal preparations like cortisone, ACTH, ant. pituitary and thyroid have to be avoided.

The invariable presence of B_{12} deficiency has to be countered by its administration. A daily dose of at least 100 μg by mouth or 50 μg subcutaneously should be administered. Animal experiments, described previously, to assess excretion of B_{12} showed no difference whether B_{12} was injected or orally ingested. It is not correct to say that B_{12} does not act when given orally. How much the B_{12} deficiency is responsible for the development of the diabetic state to its ultimate malignancy is not known yet, but it seems reasonable not to neglect

this deficiency. Other B Vitamins may simultaneously be given. In one of my cases there appeared to be a vit. A deficiency in the form of epithelial cracks over the knuckles which improved rapidly with administration of vit. A.

A great controversy is raging about the value of testosterone in cases of diabetic retinopathies. Controlled clinical observations by rival schools produced opposite results. However it is stated that testosterone propionate injections (not methyl testosterone as linguets or skin applications) improve liver function, counter excess estrin and excess adreno-cortical activity through inhibiting the anterior pituitary function. It seems too tempting a preparation to use. I have not seen any ill-effects of its use. A dose of 25 mg injected intramuscularly first twice a week later once a week, is sufficient, without any risk of masculinization in the female. A total of 200-700 mg. may be given in all. Results if favourable are not expected till 6 weeks or so, after which improvement may continue. Its dificieney in the male diabetic as judged clinically may require a higher dosage in the male.

The use of antifragility drugs is now confined to those cases which exhibit a positive capillary-fragility test.

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"DISEASES OF HAIRS AND HAIR FOLLICLES"

by

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THERE is a tendency among modern boys and girls to produce a waving of hairs. It is due to enthusiasm to have curly hairs. There are various methods of producing curling of hairs. The old fashioned method of using curling tongs produce harm. There are two methods of producing waves (1) hot method (2) cold method. In the hot method the hairs are shampooed to remove oil and then rinsed with water. The hair is divided into 30 to 40 strands around special metal rods. Around the coiled strands paper soaked in an alkaline solution may be used. The solution used is 10% potassium-bi-corbonate. Each coil of hair is attached to hollow metal cylinders and attached to special machines to rise temparature. The cold wave method is preferred to hot wave method and ammonium thio-glycollate is used for this purpose. The permanent waving lasts for about 3 months.

Hirsuitism — Or hypertrichosis is a condition in which excess of hairs appear in regions normally occupied by lanugo hairs.

Aetiology—1. Heredity.

2. Endocrinal disorders :-

a) Adrenogenital syndrome

b) Cushing's syndrome.

Symptomatology – In congenital hypertrichosis the hairs are present while at birth and continue to grow after birth. Localised hypertrichosis is seen in relation to spinabifida in the lumbar and sacral areas.

Hirsuitism may occur during pregnancy due to adrenocortical disturbance. The endocrine disturbance producing hypertrichosis chiefly produces bearded women and masculine distribution of pubic hair.

Treatment — Hypertrichosis due to endocrine disorder requires careful investigation and correction of the imbalance by medical or surgical measures.

The removal of superflous hair is accomplished by electrolysis or by depilatories. Most of the depilatories contain calcium sulphide arsenic sulphide or barium sulphide made into a paste in water. The following combinations are useful.

1. R/ Barium sulphide dr. 1½.
   Zinc oxide and
   Amylum dr. 2½ each.
   Ft. Misce.

This is mixed in warm water before use.

2. R/ Sodium hyposulphite dr. 2½.
   Arua Calcis & Amylum āā dr. 10.

Misce to be mixed in warm water before use.

Trichiasis — In this condition the hairs of eyelids grow backwards and irritate ocular globe.

Districhiasis — In this condition two rows of hairs grow in eyelids one normally i.e., outwards and the other inwards producing irritation of ocular globe.

Atrophy of hairs—May be symptomatic or idiopathic. The symptomatic type occurs in syphilis, pthisis, seborrhoea and parasitic infections of scalp. Almost all

general diseases produce atrophy of hairs. Atrophy of hair may be of 3 varieties.

a) Fragilitas crinium.

b) Tricho - rexis nodosa.

c) Monilethrix.

(*a*) Fragilitas crinium :—The features are abnormal direction of hairs, curling and splitting of hairs. This is produced due to interference with nutrition of hairs as in ringworm scalp, seborrhoea capitis, favus etc. A similar condition may also be produced in such general diseases as tuberculosis, acute specific fevers as typhoid. Idiopathic cases have been reported. The treatment of the condition is primarily hygienic.

Trichorexisnodosa - The diseased hairs show several nodular enlargements. The chief causes are mechanical and parasitic. A mechanical injury to hair whose nutrition is below par produces nodes. A gram negative bacillus has been identified called Bacillus multiforme. Treatment has been unsatisfactory. The principles are all the avoidance of trauma and the use of oils.

Monilethrix - In this condition there are beaded hairs in scalp. The entire scalp may be involved. The affected hairs are bent and twisted in all directions. The etiology of this condition is not known and is said to be due to trophoneurotic in origin. Dr. Tobias suggests an ectodermal defect. Smith attributes the condition as due to perverted nutrition producing alternative activity and sluggishness. No organism has been isolated..

Treatment — No treatment has been found useful.

Trichonodosis — In this condition there is knotting of hairs. There may be associated fragititas crinium.

Pili Torti — This is a rare congenital abnormality and there are broken twisted hairs. Unlike monilethrix the hairs are not beaded. The condition recovers spontaneously.

Trichostasiss Pinulosa—In this condition the hairs in a bundle constituting a horny plug. This can be removed easily.

Gray Hairs or Canites.

Aetiology (*a*) Whitening of hairs may be of senila origin. This is physiological.

(*b*) Heredity.

(*c*) Deficient nutrition of hair follicles

(*d*) Functional or organic nervous affections.

(*e*) Local chemical action on hairs.

(*f*) Endocrinal as in simmond's disease.

Symptomatology—In canites the hairs may vary from all grades of colour to white e. g., dirty gray, yellowish white, steel grey and silvery white.

The condition may be partial or complete, congenital or acquired, physiological or pathological and rapid or insidious onset.

In advancing years there is physiological graying of hairs. Chemical greying of hairs is due to the use of alkaline scalp lotions which producing a bleaching effect. Canites may be produced in mental depression, melancholia, paralysis, neuralgia and also wasting disorders as typhoid, tuberculosis, syphilis, malarial fevers etc. The hairs occuring in a case of alopecia areata during treatment are at first gray or white and later become normal in colour.

Histopathology in Gray Hairs—Normal colour is due to pigment in the hair matrix and in the horny layer. The decoluration is due to either removal of pigment or failure of supply of pigment. The rapidly appearing canites are due to air bubbles in the shafts of the hairs. The

alteration in colours of hairs are attributed due to alteration of activity and rest of the pigment producing cells.

Treatment of canites—This is really a problem in dermatological practice. It is a common practice to dye hairs. Dyeing of hairs may be injurious unless properly done. The hair dyes may be of 4 varities, (1) Vegetable dyes, (2) Metallic dyes (3) compound dyes (4) synthetic organic dyes. The examples of vegetable dyes used are hennal and camomile. A combination of pyrogallic acid and alkalies is a good dye. The metallic dyes used are lead acetate solution and perchloride of mercury. Savill recommends the use of mercuric chloride 2 grain to one ounce followed by the use of sodium hyposulphite 1 drachm to one ounce. The compound dyes are made by a mixture of vegetable colours and metallic salts. Synthetic dyes are coal tar dyes but are likely to produce allergic dermatitis. The following vitamin B complex factors are being tried in graying of hairs. (1) Biotin and (2) Pantothenic Acid.

Alopecia or Baldnes—This is of various varities.

1. Congenital baldness. This may be (a) congenital universal absence (b) universal congenital hypotrichiasis (c) circumscribed regions showing loss of hair.

2. Alopecia areata :—In this there is circumscribed loss of hair in the scalp or beard region. The hairs at the periphery of the patch are normal in some places but at the borders of the areas still spreading, loose fragile hairs may be seen and are broken in places leaving a short stump produces an appearance of exclamation mark.

Aetiology—The causes may be infective, toxic endocrinal and nervous. The foci of sepsis is an important predisposing factor. Dr. Thin has isolated a bacillus called bacterium decalvans. The loss of hair may be due to an interference of the vascular supply producing vasoconstriction. To be frank the cause of alopecia remains unknown.

Histopathology—The hair follicles and hair bulbs are greately reduced in size. The hair follicles contain loose keratin and no hairs. The sebaceous and sweat glands are normal.

Treatment—The principles are freedom from anxiety, removal of septic foci and use of stimulating remedies. A useful prescription is :—

Tr. cantharidine	12·5	parts.
Acetic acid	20·0	„
Glycerine	12·5	„
Distilled water	30·0	„
Ethyl alchohol 25%	25·0	„

Misce.

Local injections of acetyl choline is also beneficial.

Alopecia Cicatrisa or Pseudopelade of Brocq :—In this condition there are irregular areas of alopecia and atrophy of skin. The patients have been nervous and impressionable. The areas of alopecia vary from that of a pinhead to that of small coin. The commonest sites are the vertex and upper part of occiput, the temporal region and the mastoid. The skin is thin and translucent and suggests an onion skin appearance.

Histopathology of Skin—During the early stage there is perifollicular infiltrate of lymphocytes and a few histiocytes. Follicular hyperkeratosis may occur. In the late stages the epidermus is atrophic and the dermis shows fibrosis. No treatment is effective.

Folliculitis Decalvans—This is a scar-leaving alopecia. The disease is bacterial in origin. The histological picture resembles psedopelade with the addition of true pustule on the follicular surface.

The application of hydrocortisone skin ointment is beneficial in this condition.

Perlfolliculitis Capitis Abscends Et Suffodiens—This is a rare suppurating and cicatrising disease of scalp. The features are nodules abscesses and scar formation. The nodules are fluctuating lesions. Histologically the lesions show grannulomatous lesions with many giant cells. Staphylococci and streptococi can be seen.

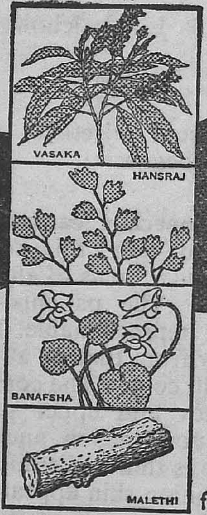
The measures are (1) vaccines (2) broad spectrum antibiotics and (3) prednisolone group of drugs.

Sycosis Nuchae Necrotisans—In this condition there is keloid like cicatriform, irregularly shaped and circumscribed elevation of surface of the back of neck. The condition is produced from friction of the collar.

Sycosis Vulgaris — This is a common chronic inflammatory disorder involving the hair follicle in the moustache and beard region due to staphylococci. A similar condition occuring usually in the lower limbs is known as **Bochart's Folliculitis.**

The measures are : (1) Vioform cream (2) Hydro cortisone ointment (3) Antibiotics systemically.

INDIAN HERBS
· VASAKA
· HANSRAJ
· GULBANAFSHA
· MALETHI



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FAMILY PLANNING—Contraceptives for sale at the Family Planning Clinics—list of.

A revised provisional list of approved contraceptives furnished by the Director-General of Health Services, New Delhi, is furnished below for the general information of all medical practitioners. Contraceptives containing hydroquinone and quinoline and its derivatives should not be used as they are not considered harmless at present.

Provisional List of Approved Contraceptives

Category 1.

Pastes, jellies and Suppositories including foam tablets which in the opinion of the Contraceptives Testing Unit reach the required level of spermicidal efficiency in laboratory tests.

Jellies and Pastes

	Name		Manufacturer/Importer	Spermicidal Agent
1.	Contraceptalene	...	Lamberts (Dalston) Ltd., 200/2, Greenbridge Road, Dalston, London, E. 8.	Lactic Acid Boric Acid
2.	Volpar Paste	...	British Drug Houses, London (British Drug Houses (India) Private Ltd., Imperial Chemical House, Bombay-1	Phenylmercuric acetate
3.	Preceptin	...	Ortho Products, Raritan, N. J. U. S. A. (Ortho Pharmaceuticals Imperial Chemical Industries (India) Private Ltd., P. B. 310, Bombay-1.	P-Diisobutylphenexy-polyethoxy ethanel ricineleic acid
4.	G. P. Ointment	...	Gilmont Products Ltd., Tileyard Road, York Way, London No. 7.	Hexylresercinol
5.	G. P. Jelly No. 479		do.	do.
6.	Duracreme	...	London Rubber Co. Ltd., Hall Lane, Chingford, London, E.C. 4	do.
7.	Ortho Creme	...	Ortho Pharmaceutical Ltd., Lane End, High Wycombe Bucks. England M/S Imperial Chemical Industries (India) Private Ltd., P. B. 310, Bombay-1.	Ricinoleic Acid and Sodium Lauryle sulphate
8.	Orthogynol Jelly	...	do.	Ricinoleic acid and P-diisobutylphenoxy-polyethoxyethanel

Name	Manufacturer / Importer	Spermicidal Agent
9. Prentif Spermicidal Compound ...	Prentif Ltd., Long's Court, St. Martin's Street, London, W.C. 2.	Hexylressorcinol
10. Cooper Creme ...	Whittaker Laboratories INC. 898, Washington Street, Peekskill, New York. (Dr. Jai Singh's Son & Co., Private Ltd., 18/4, Asaf Ali Road, P. O. Box No. 457, New Delhi.)	Trioxymethylene 0·04% Sodium Olcate 0·67%
11. Antemin ...	Coats & Cooper Ltd , Pyramid Works, West Drayton, Middlesex, England.	Trioxymethylene and Sodium dioctyl sulphesuccinate
12. Rendell Creme ...	W.J. Rendell Ltd., Ickleford Manor, Hitchin Herts. England.	Hexylresorcinol
13. Penotrane ...	Ward Blenkinsopp & Co., Ltd., 37, Queen Square, London, W.C.I. (M/S Ward Blenkinsopp & Co., (India) Ltd.. Bombay-18.	Phenylmercuric dinaphthylmethane disulphonic acid
Suppositories		
1. G. P. Solubles ...	Gilment Products Ltd., Tileyard Road, York Way, London No. 7.	Hexylresorcinol
2. Prentif Gels ...	Prentif Ltd., Long's Court, St. Martin's Street, London W.C. 2.	do.
3. Volpar Gels ...	British Drug Houses Ltd., Graham Street, City Road, London N. 1. (British Drug Houses (India) Ltd., Imperial Chemical House, Bombay-1	Phenylmercuric acetate
4. Rendell Gels ...	W. J. Rendell Ltd., Ickleford Manor, Hitchin, Herts, England.	Hexylresorcinol
Non-Spurmicidal Lubricants		
1. K. Y. Jelly ...	Johnson & Johnson Ltd., Bath Road, Slough, Bucks, England.	
2. Durol ...	London Rubber Co., Ltd., Hall Lane, Chingford, London, E. 4.	
3. Prentif Surgical ...	Prentif Ltd., Long's Court, St, Martin's Street, London, W.C. 2.	
Foam Tablets		
1. Volpar ...	British Drug Houses, London. (British Drug Houses (India) Private Ltd., Imperial Chemical House, Bombay-1.	Phenylmercuric acetate

	Name	Manufacturer / Importer	Spermicidal Agent
2.	Semori ...	Leuitpold Work Munich, Germany (Neo Pharma Ltd., Kasturi Building, J. Tata Road, Bombay-1.	O-oxybensopyrid Sulphate
3.	Sampoon ...	Nipon Eisai Co., Ltd., 88, Jakenhay-ache, Bunkye Ku, Tokyo, Japan. (Shah & Jani C/O Andre Laboratories, Aidun Building, 1st Dhobi-talao Lane, Bombay-2.	Phenylmercuric acetate
4.	Bymeston ...	Lamberts (Dalston) Ltd., 200/2, Queen's Bridge Road, Dalston, London, E. 8.	Chlomarine-T
5.	Contab (Formula IV) ...	Smith Stanistreet & Co., Ltd., 18, Convent Street, Calcutta.	Soda Bicarb, Acid Tartaric, Chloramine Perfume and Excipients C. S.
6.	Durafoam ...	Durex Products INC. 684, Broadway, New York 12.	3½% P/ Tiisopropylphenexy-polyethoxyethanel, O. 1% prophylhydroxybenzoate, and excipients
7.	Planitab ...	Hind Chemical Ltd., Sircar Road, P. B. 227, Kanpur.	1·2 mg. Pyridine mercuric chloride
8.	Biroon ...	London Rubber Co., Ltd., Hall Lane, Chingford, London E. 4.	Chloramine-T
9.	Mycone ...	Allied Laboratories Ltd., 140, Park Lane, London W. 1. (Dr. Jai Singh's Son & Co., 18/4, Asaf Ali Road, P. O. Box 457, New Delhi.)	Phenylmercuric acetate

Category 2.

Pastes, Jellies and Suppositories including foam tablets which satisfy keeping qualities.

1.	Preceptin Jelly ...	Ortho Products, Raritan, N. J. USA (Ortho Pharmaceuticals, Imperial Chemical Industries (India) Private Ltd., P. B. 310, Bombay-1.	P-Diisobutylphenexy-polyethoxy ethanel ricineleic acid
2.	Contab (Formula IV) tablets ...	Smith Stanistreet & Co., Ltd., 18, Convent Street, Calcutta.	Soda Bicarb, Acid Tartaric, Chloramine-T Perfume and Excipients C. S.
3.	Semori tablets ...	Leuitpold-Work, Munich, Germany (Neo Pharma Ltd., Kasturi Building, J. Tata Road, Bombay-1.)	O-oxybensopyrid Sulphate

	Name	Manufacturer / Importer	Spermicidal Agent
4.	Bymeston tablets ...	Lamberts (Dalston) Ltd., 200/2, Queens Bridge Road, Dalston, London E. 8.	Chlomarine-T
5.	Sampoon ...	Nipon Eisai Co., Ltd., 88, Jakenhyche, Bunkye Ku, Tokyo, Japan. (Shah & Jani C/o Andre Laboratories, Aidun Building, 1st Dhobitaloa Lane, Bombay-2.)	Phenylmercuric acetate

Category 3.

Pastes, Jellies and Suppositories including Foam tablets which in the opinion of the Contraceptive Testing Unit reach the required level of spermicidal efficiency by laboratory tests and which have been found reliable and harmless by prolonged use at the Family Planning Centres approved for the purpose.

No contraceptive have been placed in this list at present. The names under this category will be intimated as soon as any contraceptive is placed in this category.

NOTES :—1. The contraceptives containing hydroquinone and quinoline and its derivatives should not be used as they are not considered harmless at present.

2. The contraceptives in category 1 and 2 of this list should be used in clinics with approved mechanical contraceptives. However there could be no objection for using without any mechanical contraceptives foam tablets shown in category 1 and 2 provided they are given by qualified medical officers and the patients are kept under observation.

3. Clinics should report immediately to this Directorate if any untoward effects are noticed.

Rubber and Plastic Appliances

	Name	Manufacturer	Importer
1.	Cervical ('Racial')	Constructive Birth Society, 108, Whitfield Street, London W. 1.	
2.	Vimule Caps ...	A. Lambert & Co., 16, Dalston Lane, London E. 8.	
3.	Dutch Dums type (5 sizes) Cervical ...	Lamberts (Dalston) Ltd., 200/2, Queens Bridge Road, Dalston, London, E. 8.	
4.	Dutch Caps (Durex) flat or spiral spring	London Rubber Co., Hall Lane, Chingford, London E. 4.	
5.	Cervical Caps (Check pessaries Durex) ...	do.	

	Name	Manufacturer	Importer
6.	Vaginal Diaphragms latex, spiral spring (Dutch cap type) ...	Ortho Pharmaceutical Ltd., Lane End, High Wycombe, Bucks, England	M/S Imperial Chemical Industries (India) Private Ltd., P. B. 310, Bombay-1.
7.	Plastic caps : Dumas type (5 sizes) ...	Portland Plastics Ltd., Bassett House Hythe, Kent, England.	
8.	Vaginal Diaphragms latex spiral spring (Dutch cap type) " Prencaps " (Dums type) Cervical Caps: " Cercap ": cavity rim ; seamless Dome	Prentif Ltd , Long's Court. St. Martin's Street, London W. C. 2.	
9.	Durex ...	Durex Products, 684, Broadway, New York 12, N. Y. USA.	
10.	Koromex ...	Holland Randoz Corp., New York, USA.	Herbens Ltd., Prospect Chambers, Bombay Road, Bombay-1.
11.	Kemi ...	Kemi Products Corp., N. J. USA.	Bombay Surgical Co., Charni Road, Bombay-4.
12.	Check pessaries ...	Rubber Industries (India) Ltd., 243, Abdul Rehman St., Bombay-3	
13.	Cooper ...	Whittaker Laboratories Inc. 898, Washington Street Peekskill, New York.	Dr. Jai Singh's Son & Co., Private Ltd., 18/4, Asaf Ali Road, P.O. Box 457, New Delhi.

Condoms and Washable Sheaths

	Name	Manufacturer	Importer
1.	Condoms and Washable Sheaths	A Lambert & Co., 16, Dalston Lane, London E. 8.	
2.	Condoms and Washable Sheaths	Lamberts (Dalston) Ltd., 200/2, Queens Bridge Road, Dalston, London E. 8.	
3.	Condoms ("Protectives") Transyl, Silvine and Lion ...	London Rubber Co., Ltd., Hall Lane, Chingford, London E. 4.	
4.	Washable Sheaths (" Paragons ") Silivine and Lion ...		

	Name	Manufacturer	Importer
5.	Condoms ("Protectives Ona and Durex") ...		
6.	Washable Sheaths ("Paragons") Durex ...		
7.	Condoms and Washable Sheaths...	Prentif Ltd., Long's Court, St. Martin's Street, London W. C. 2.	
8.	Durapac ...	Durex, England.	L. D. Seymour & Co., Appollo Bunder. Bombay-1
9.	Gold Coin ...	Watch & Co., Ltd., Japan.	Bhogilal Premchand & Co., 24, Princes Street, Bombay
10.	Rex ...	Aarhus Gummivare Fabrik Ltd., Denmark.	Dr. Jai Singh's Son & Co., Private Ltd., 18/4, Asaf Ali Road, P.O. Box 457, New Delhi
11.	Regard ...	do.	do.

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